# Natural Gas Market Prices
# Monthly Update



October 1, 2003

# NATURAL GAS MARKET PRICE UPDATE

On March 13, 2003, Governor Davis asked the California Energy Commission (Energy Commission) and the California Public Utilities Commission (CPUC) to review the unexpectedly rapid rise in natural gas market prices that occurred in late February 2003. He also asked that the two Commissions issue a report to his office and provide a monthly update of any additional findings.

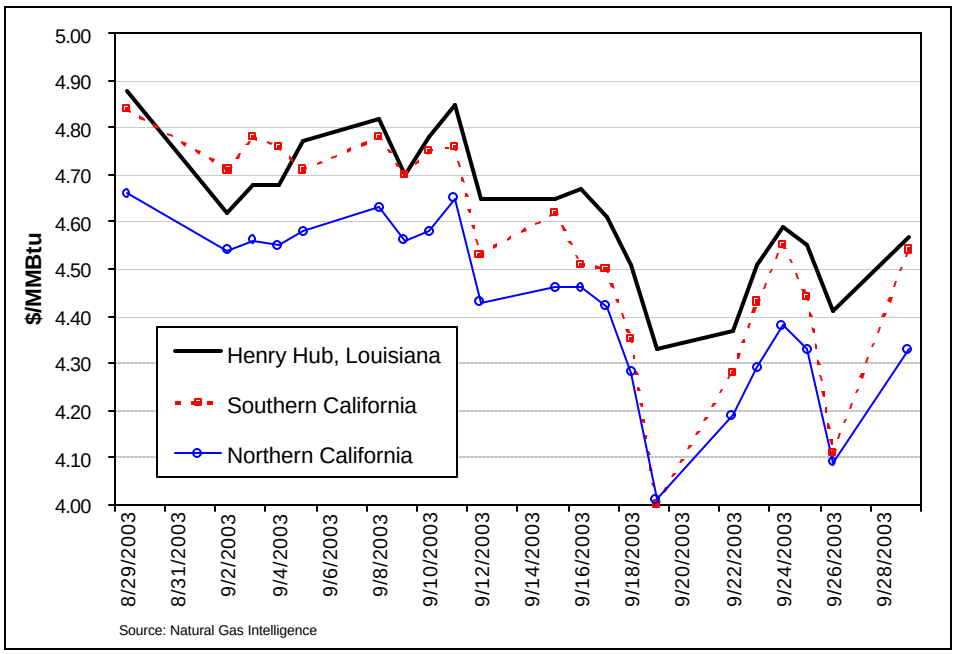
This report, the last retrospective review of the February 2003 price spike, provides an update on natural gas prices in California for the month of September 2003 and the natural gas storage inventory levels for both the state and the nation. We also report on the meeting with the Federal Energy Regulatory Commission (FERC) staff on price spike investigations and agreed to coordinate on future investigations.

Next month, we will assess the winter heating season, expected market conditions, and review state and utilities' preparation for this winter. In addition, the report will provide consumer tips in how to manage their natural gas bills.

## Recent California Natural Gas Prices

California natural gas spot market prices declined during September 2003 as expected, and generally stayed below the national benchmark price. Figure 1 compares the natural gas prices in Northern and Southern California to the national Henry Hub spot market prices.

**Figure 1**




Two factors, temperatures and consistent gas production in the Gulf of Mexico, were primarily responsible for influencing natural gas prices during September 2003.

Temperatures were moderate throughout the nation, keeping cooling demand at moderate levels. As a result, natural gas demand for electricity generation continued at reasonable levels. Second, gas production in the Gulf of Mexico production area was not affected by tropical storms, allowing production to stay at normal levels. As a result, considerably more natural gas was available to meet consumer and storage needs.

**Natural Gas Storage Inventories**

In previous reports, we emphasized the need for adequate natural gas storage inventories for winter 2003-2004 to reduce the impacts of national price spikes on California gas consumers. Maintaining adequate inventories is key to providing flexibility for gas buyers and sellers to balance supply and demand, and promoting a stable and reliable supply. Adequate storage also buffers volatile price movements in the market place by providing additional supplies inside the state, which have already been purchased.

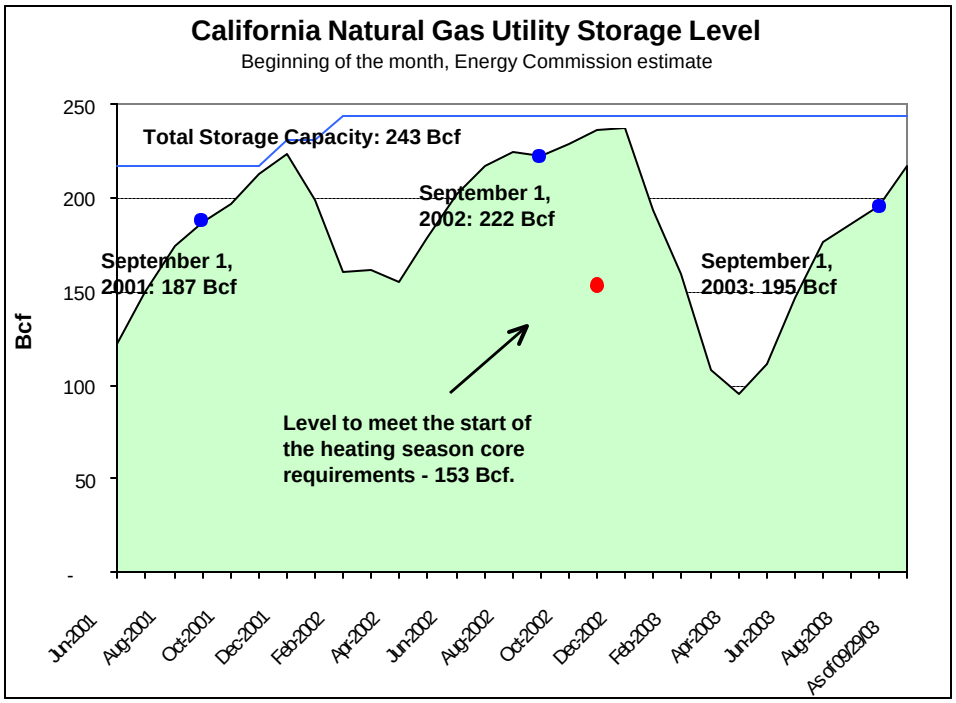
The recent policy work at our Commissions have highlighted the need to fill California storage facilities to provide additional gas supplies to meet peak gas needs this winter. Our primary objective is to ensure that consumers have a reliable supply of natural gas. The state's storage facilities are the main tool available to the gas utilities and customers to meet this goal, since the capacity of the pipeline system alone is not designed to meet peak day gas demand.

The secondary policy objective is to maintain stable and reasonably priced natural gas supplies. Major natural gas consumers can help by using stored natural gas, instead of purchasing gas on the spot market where prices can spike unexpectedly. The gas utilities have used this strategy effectively in the past to dampen the effects of market price spikes. Our Commissions believe that gas utilities and the industrial and power generation customers should continue to use storage to maintain stable supplies and dampen any price spikes this winter. (See the Energy Commission's recently issued draft *Integrated Energy Policy Report)*.

Consumers' gas bills this winter are expected to be higher than last year, in part because the natural gas already purchased and injected into storage cost gas consumer more than last year. Since we believe natural gas spot prices will be higher this winter than they have been in the past three months, this "buy early and inject" strategy is a beneficial action. However, the utilities should caution their ratepayers that bills may be higher than winter 2002-2003 and that conservation and energy efficiency efforts should be encouraged.

We estimate that 153 billion cubic feet (Bcf) of inventories provide the minimum needed to serve the heating needs for California's core customers during the coming winter. This 153 Bcf level is needed by November 1 each year. As of September 24, 2003 California storage inventories were 212 Bcf. Figure 2 shows the recent increases in California storage inventories. To satisfy demand for this upcoming winter, California storage customers have injected about 117 Bcf since April 1, 2003, the traditional date to begin refilling storage facilities. As a result, storage inventories are approaching the maximum storage capacity level of 243 Bcf.

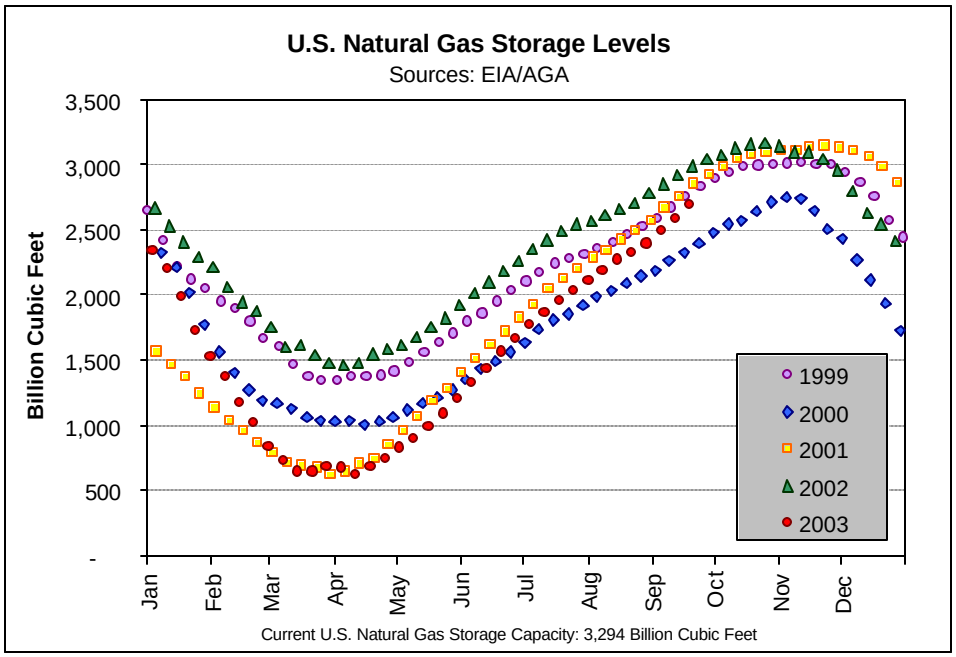
**Figure 2**




California will further benefit from the accelerated availability of the Wild Goose Storage, located in Northern California, expansion project when it comes on-line November 1, 2003, instead of Spring 2004. This increased storage will be available during the typical withdrawal season and provide benefits to California by allowing additional gas injections during the winter whenever heating demand moderates.

Figure 3 compares weekly storage levels in the U.S. during the past four and one-half years. National storage levels have been rapidly increasing, with utility and other customers continuing to inject gas into storage. For the week ending September 12, 2003, 102 Bcf were injected nationally, a near record amount. Storage levels are now only 4 percent below the five-year average. To reach the desired level of 3,000 Bcf by November 1, 2003, weekly storage injections must average about 59 Bcf. Natural gas demand normally subsides during September and October due to cooler weather, leading to additional natural gas injections into U.S. storage. Many analysts believe that the 3,000 Bcf in storage inventories provide a comfortable buffer for the U.S. winter peak demand.

**Figure 3**




## Federal Energy Regulatory Commission Price Spike Investigation

As reported in the August 2003 *Energy Commission/CPUC Natural Gas Market Price Report*, the FERC conducted its own investigation into possible manipulation of the February 2003 natural gas market prices. The report summarized their confidential investigation, published July 2003. The staff conducted not only a review of market data, even citing our Commissions' report, but more importantly conducted a thorough review of transactional data, including interviews with many market traders. The FERC staff agreed with California's conclusion. That is, they did not find evidence of market price manipulation. Attached is the FERC's presentation summarizing their investigation and is provided with their consent.

The staff of FERC, the Energy Commission, and the CPUC met on September 12, 2003 to review our mutual investigations. After a lengthy discussion, we agreed to coordinate future investigations into market price investigations. Each agency brings different strengths to such an investigation, resulting in a more robust final report, which better serves the natural gas consumer. If any future unusual events occur, we agreed to coordinate and communicate with each other.

In summary, California's natural gas market outlook for winter 2003-2004 continues to improve, especially compared to earlier expectations, primarily due to significant increases in storage inventories. The Energy Commission and CPUC are now satisfied California gas consumers will have adequate reliable supply of natural gas assuming reasonable weather. The Commissions remain concerned about above average natural gas prices and their impact on consumers' bills this winter. We will report on our outlook for this winter in the next *Energy Commission/CPUC Natural Gas Market Price Report*.

# ATTACHMENT

Federal Energy Regulatory Commission

# *February 2003 Gas Price Spike Discussion*

Meeting among CEC, CPUC, CAISO and FERC-OMOI

September 15, 2003

# Contents

## Fundamentals Appear to Drive Spike

Weather / Demand

- Late-season cold front pushed up demand in the East and the Midwest
- On Feb 24, the National Weather Service predicts below normal temperatures for most of the entire U.S. for the first few days of March

Storage

- Low, late-season storage levels reduced deliverability capacity – very low levels have increased this effect

Fuel Switching

- Generators with the ability to switch to heating oil already have, or can't due to environmental restrictions

Operational Flow Orders

- OFO's called on NGPL, Dominion; Transco, Tennessee, Texas Eastern, Nicor, People's and Con Edison.

Supply / Production

- Cold front caused well freeze-offs on Tuesday, Feb 25 in Mid-continent producing areas
- Continuing concerns regarding reported production decline

# Fundamental Study Approach

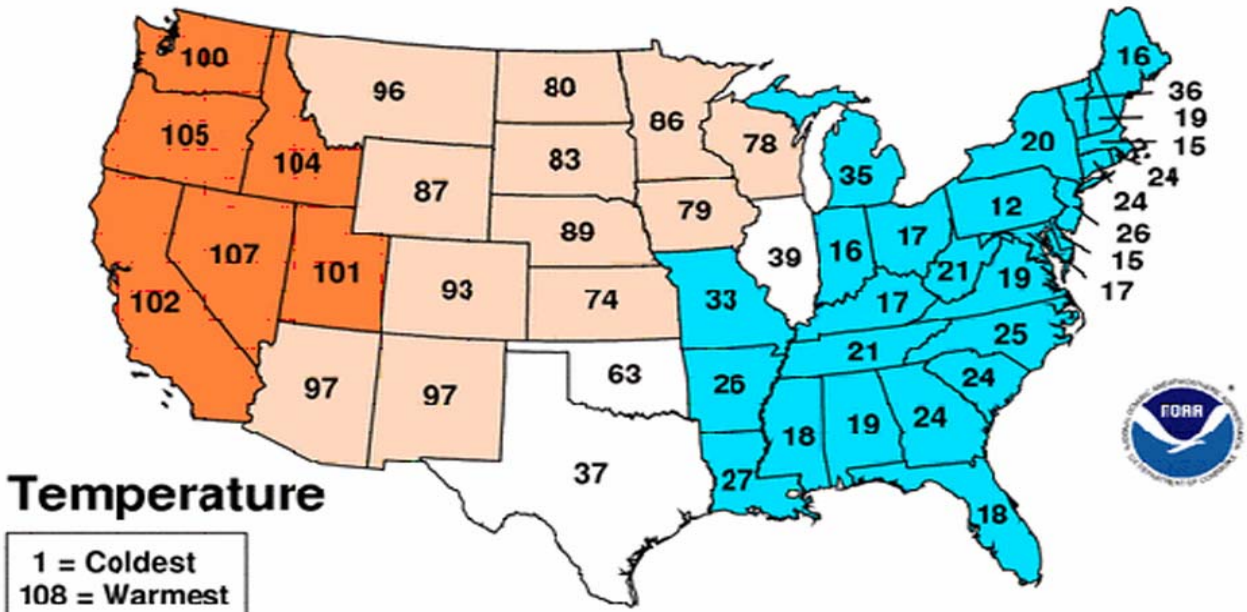
Interviews were conducted with:
- Interstate pipelines serving the Northeast and Midwest,
- Electric generators,
- Local distribution companies (LDCs) and
- State agencies.

Particular emphasis was placed on the New York City and Chicago city gates, as both experienced high basis differentials by historical standards and were considered representative of the Northeast and Mid-west markets.

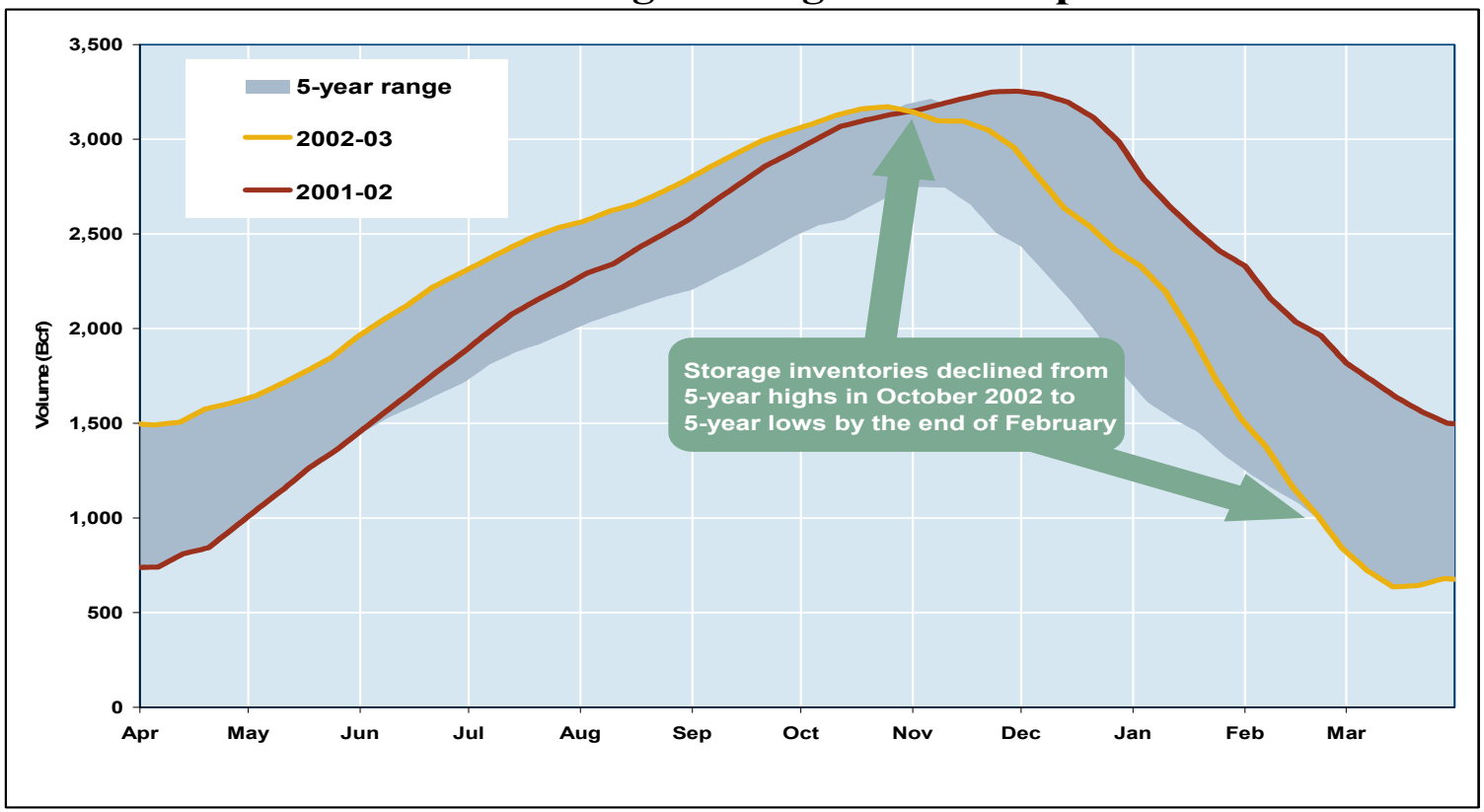
The interviews were followed by detailed data request to the relevant pipelines for:
- Utilization and gas balances,
- OFOs and critical day notices,
- General operating conditions,
- Interruptible volumes and the
- Status of expansion projects.

# Dec 2002-Feb 2003 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

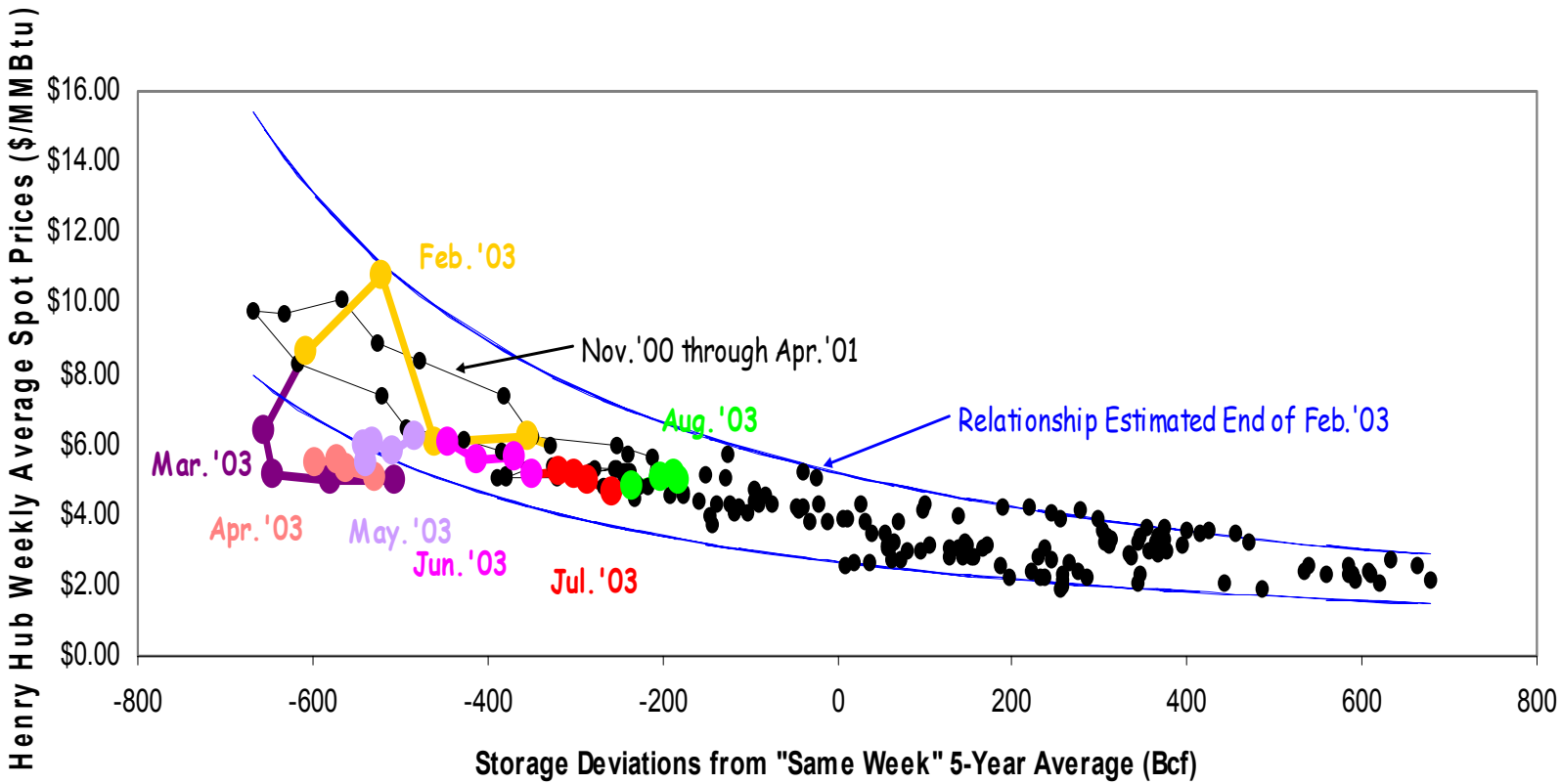


# National Storage Inventories Were at the Low End of the 5-Year Range during the Price Spike

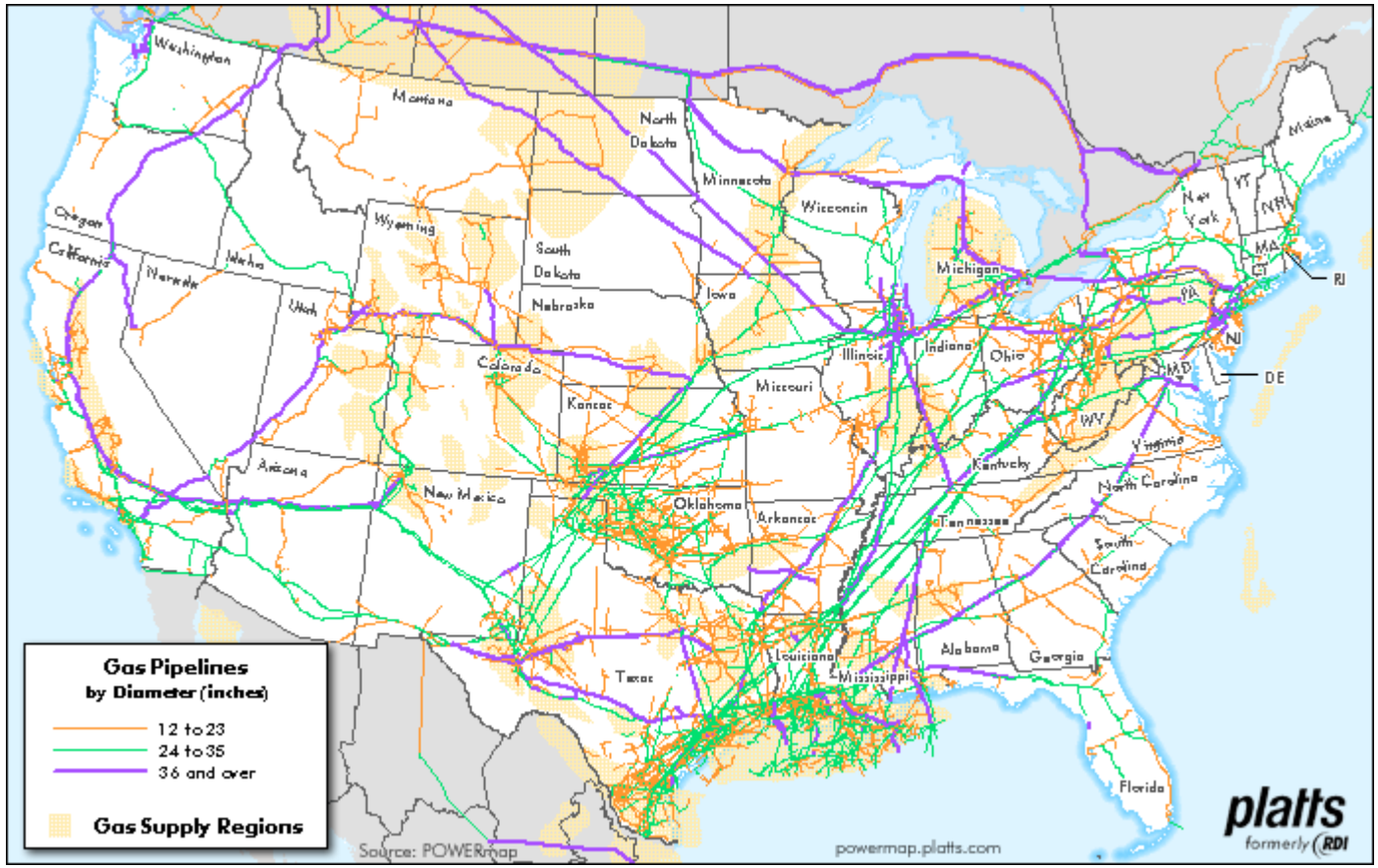



Storage levels were low with ratchets in effect. A storage ratchet reduces deliverability corresponding to reduced inventory. Typically as inventory levels reach 10 to 20 percent of maximum inventory, storage deliverability will be reduced by as much as 30 percent.

# Prices vs Storage Inventory



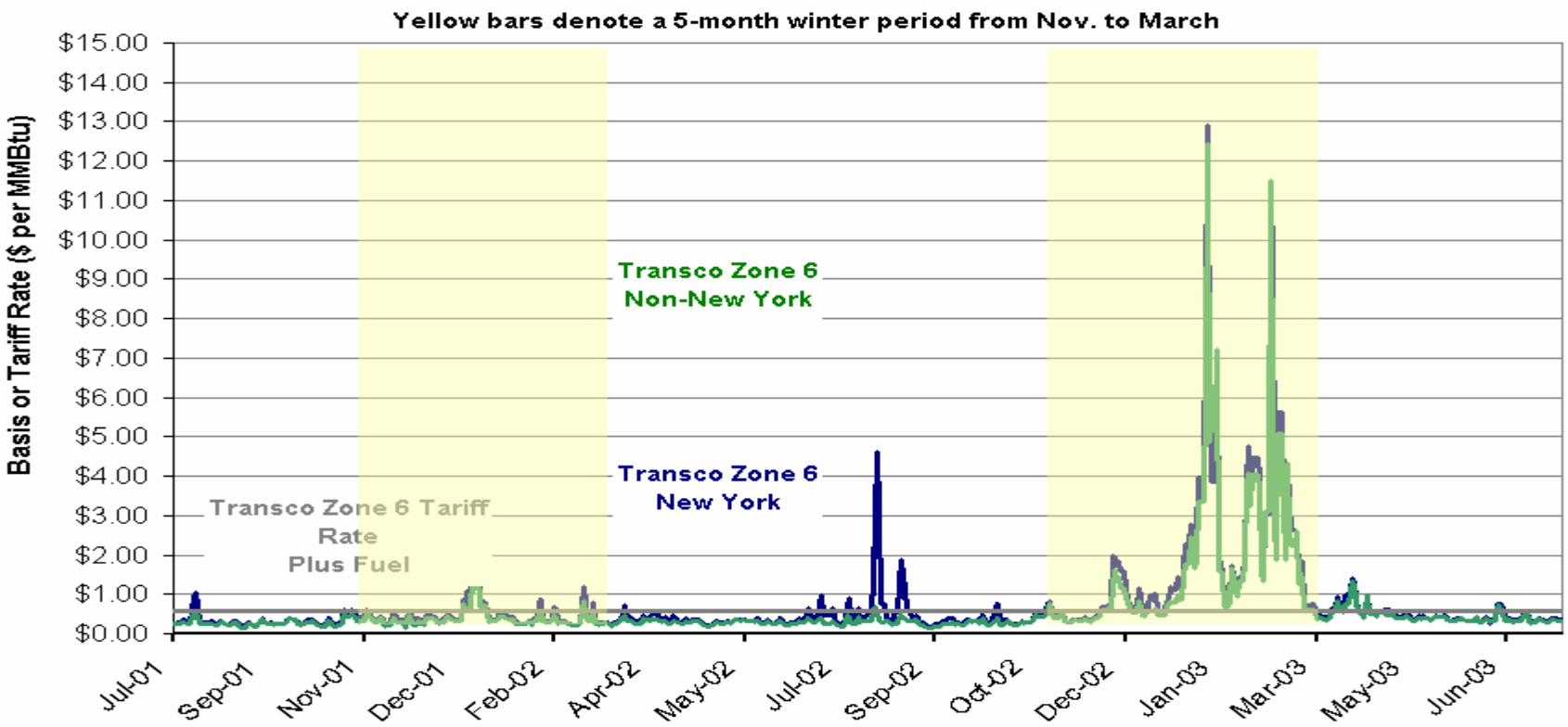
# United States Pipeline Grid



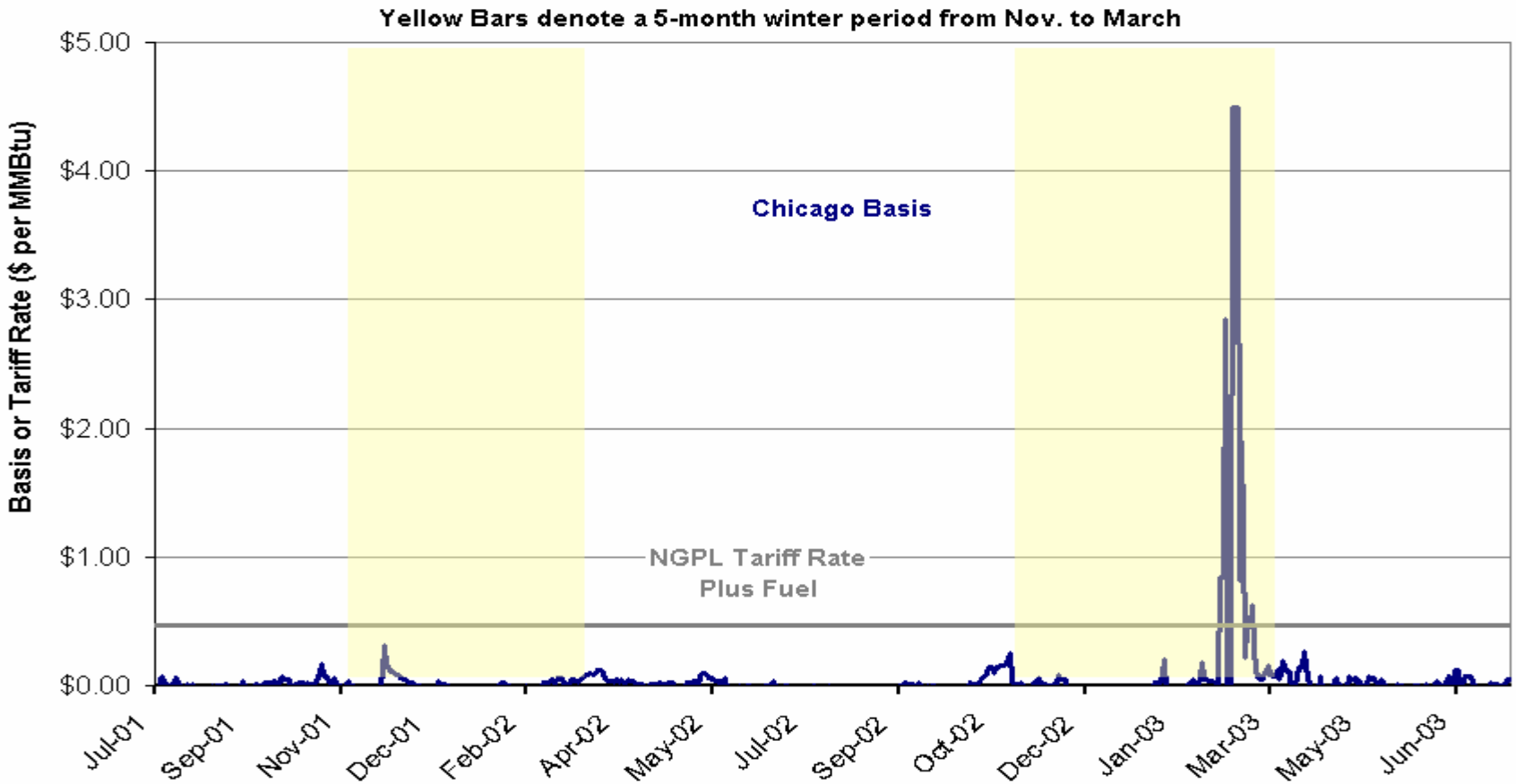
Due to the shear breath of the cold weather during November 2002 to February2003, the interstate pipelines did experienced near record throughput:

- Texas Eastern delivered record volumes, surpassing the highest previous period by 8 percent. Thirteen of Texas Eastern's twenty-five highest delivery days occurred with an all-time record high day on January 17, 2003.
- Algonquin delivered record volumes surpassed the highest previous period by 9 percent. Eleven of Algonquin's twenty-five highest delivery days occurred.
- Tennessee Gas Pipeline: Thirteen of the top 25 record peak days on Tennessee's system occurred between January 17 and February 12, 2003, including 5 of the top 6 record peak days.
- Transco: New York City has 11 percent colder than normal weather.
- Dominion Transmission: DTI began sustained storage withdrawals on October 22, 2002. and experienced temperatures that were 9% colder than normal, and 34% colder than the same period during 2001/2002. DTI experienced a record storage turn.

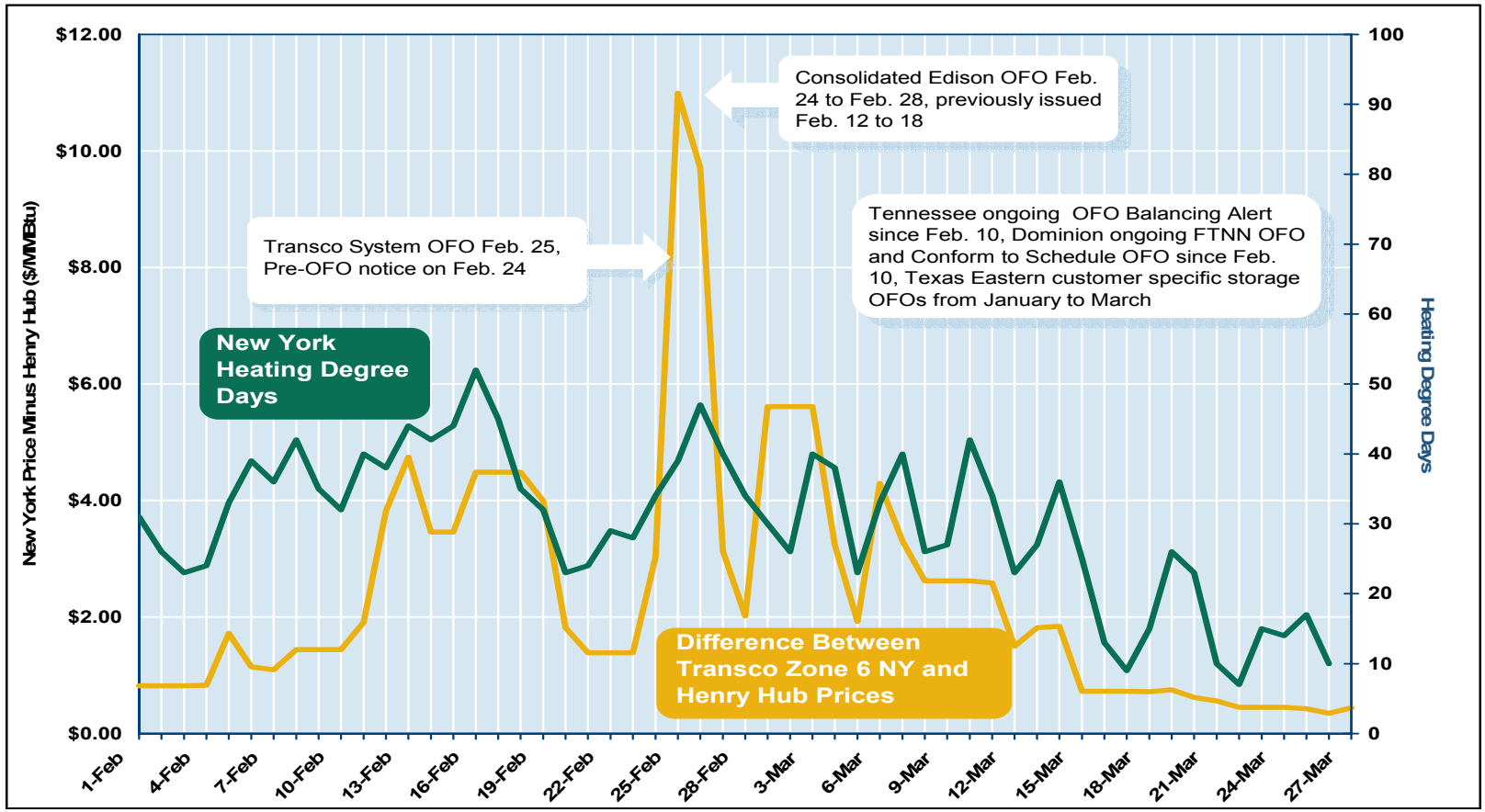
## Transco Zone 6 Basis Differential to Henry Hub Versus Maximum Tariff Rates Plus Fuel



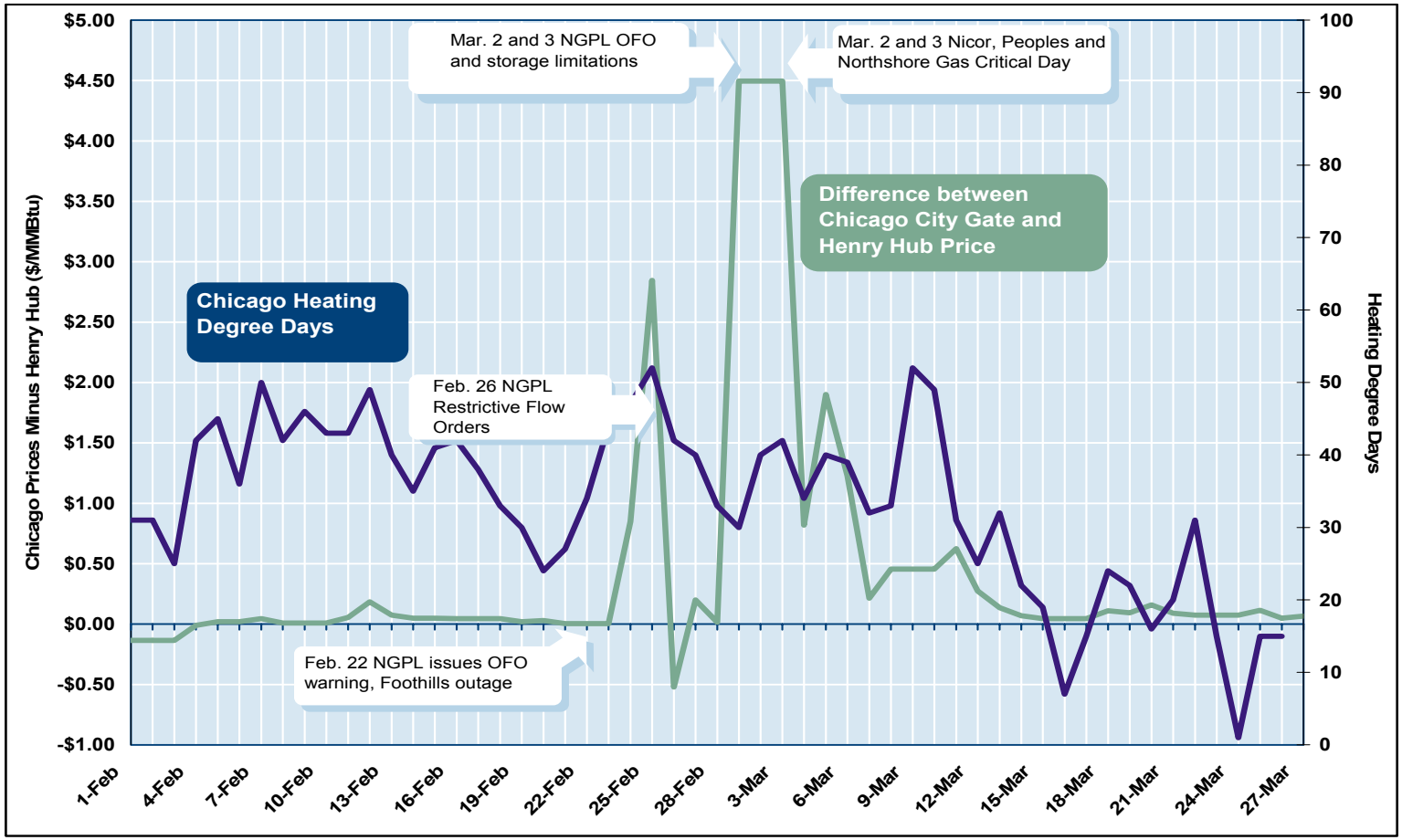
## Chicago Basis Differential to Henry Hub Versus Maximum Tariff Rates Plus Fuel



# New York City Pipeline and Storage Limits



# Chicago Pipeline and Storage Limits



# Transaction Level Study

- Transaction Data from ICE and 15 Voice Brokers for Feb 21-28
  - ICE Trades 12,460 (63% physical, 37% financial)
  - ICE Bid, Offer & Trades 150,906
  - Voice Broker Trades 4,078 (10% physical, 90% financial)

- ICE Data
  - Physical Volumes (163,938,900 MMBtu's)
  - Financial Volumes (1,337,200,000 MMBtu's)
  - Focused on next-day and balance-of-month physical

- NYMEX Data
  - CFTC shared publicly available transaction volume and price data for period

# Data Analysis

- Plotted fixed price transactions for Feb 21-28 by region and trading point, and examined:
  - Price, volume, number & diversity of traders at 31 points- concentrations
  - Timing of price changes among various points – in specific regions versus across the country – geographical relationships
  - Bids & Offers per actual trade – liquidity
  - Percentage of volume netted out same day – speculation

- Identified the largest buyers and sellers at each point and region, including:
  - Concentration by point, region and across regions
  - Timing of trades / potential price leading
  - Large activity level over short periods
    - Many bids and offers
    - Many successive transactions in the same price direction
  - Potential strategies
    - Confirmed strategies through interviews

# Examined Trading Patterns

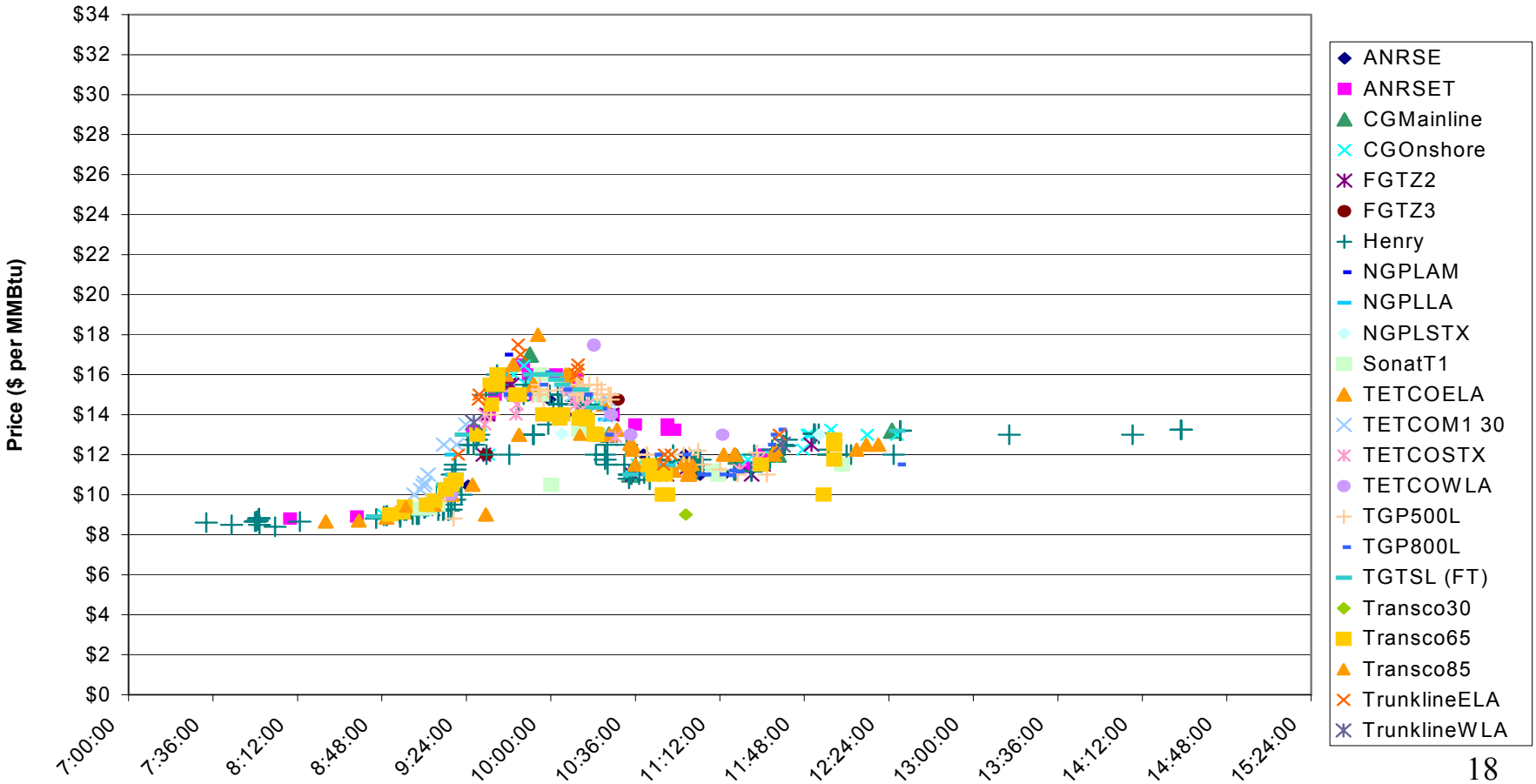
- During large price changes
  - Large share of sales, bids and offers
  - Switching between bids and offers within short periods
  - Large barrage of bids and offers
  - Frequency of trades between same counterparties
  - Multiple orders in close succession as prices increase or decrease

- Concurrent price and volume changes across markets
  - Reviewed to see if it was the same counterparties

# Trading data showed remarkably few trades and traders at key pricing points

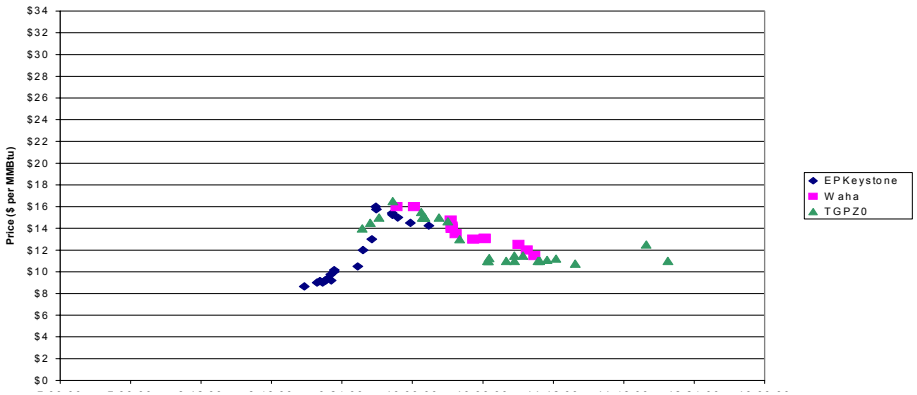
| ICE Market Location | Number of Traders | Number of Sales | Volume (MMBtus) | Concentration Ratio of 4 Largest Buyers (Volume %) | Concentration Ratio of 4 Largest Sellers (Volume %) |
|---|---|---|---|---|---|
| **Production Area:** | | | | | |
| Henry Hub | 32 | 76 | 1,069,733 | 56.7 | 48.9 |
| **New York:** | | | | | |
| Transco Zone 6 New York | 14 | 15 | 104,533 | 81 | 68.6 |
| **Chicago:** | | | | | |
| NGPL, NICOR | 22 | 41 | 440,017 | 71.3 | 55.4 |
| PGLC | 17 | 22 | 257,650 | 67.9 | 66.4 |
| **West Texas:** | | | | | |
| El Paso | 15 | 16 | 176,083 | 69.7 | 70.5 |
| Keystone Waha | 10 | 15 | 180,700 | 88.6 | 81.1 |
| **California:** | | | | | |
| PG&E Citygate | 16 | 28 | 497,317 | 78.9 | 65.9 |
| PGT Malin | 12 | 13 | 173,217 | 82.6 | 69.7 |

## LA GULF COAST - FIXED PRICE
## ICE - February 24, 2003

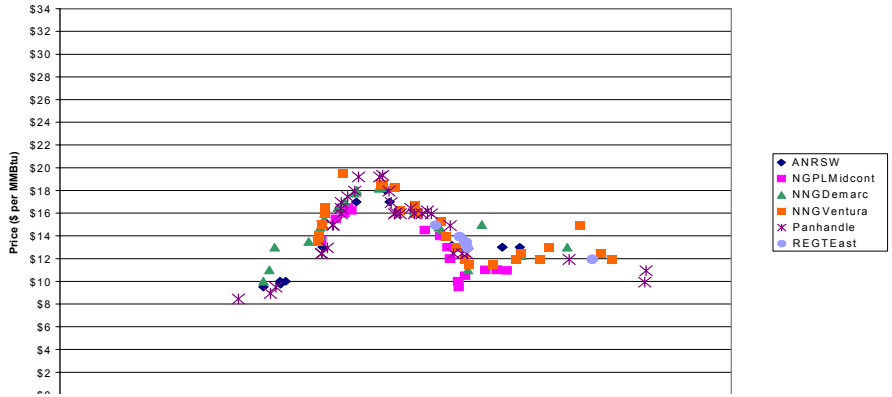


# Next Day Fixed Price - ICE for Feb 24

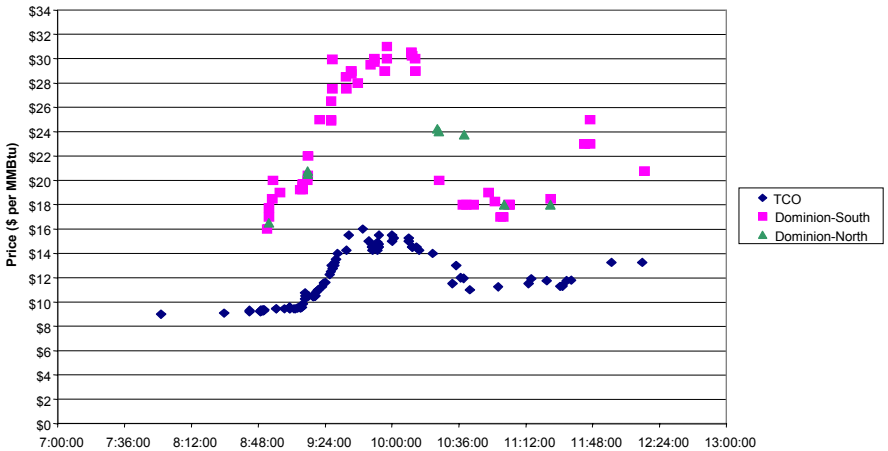
TEXAS / PERMIAN BASIN FIXED PRICES
ICE - February 24, 2003



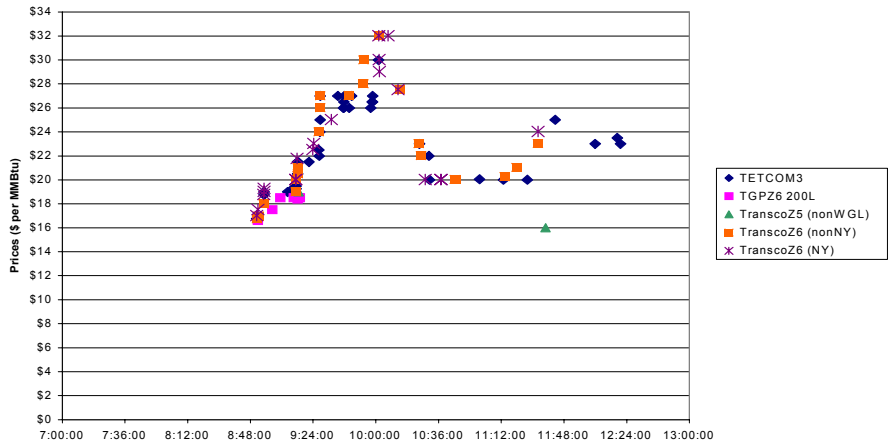

MID-CONTINENT - FIXED PRICES
ICE - February 24, 2003




Appalachia Fixed Prices
ICE - Feb 24, 2003

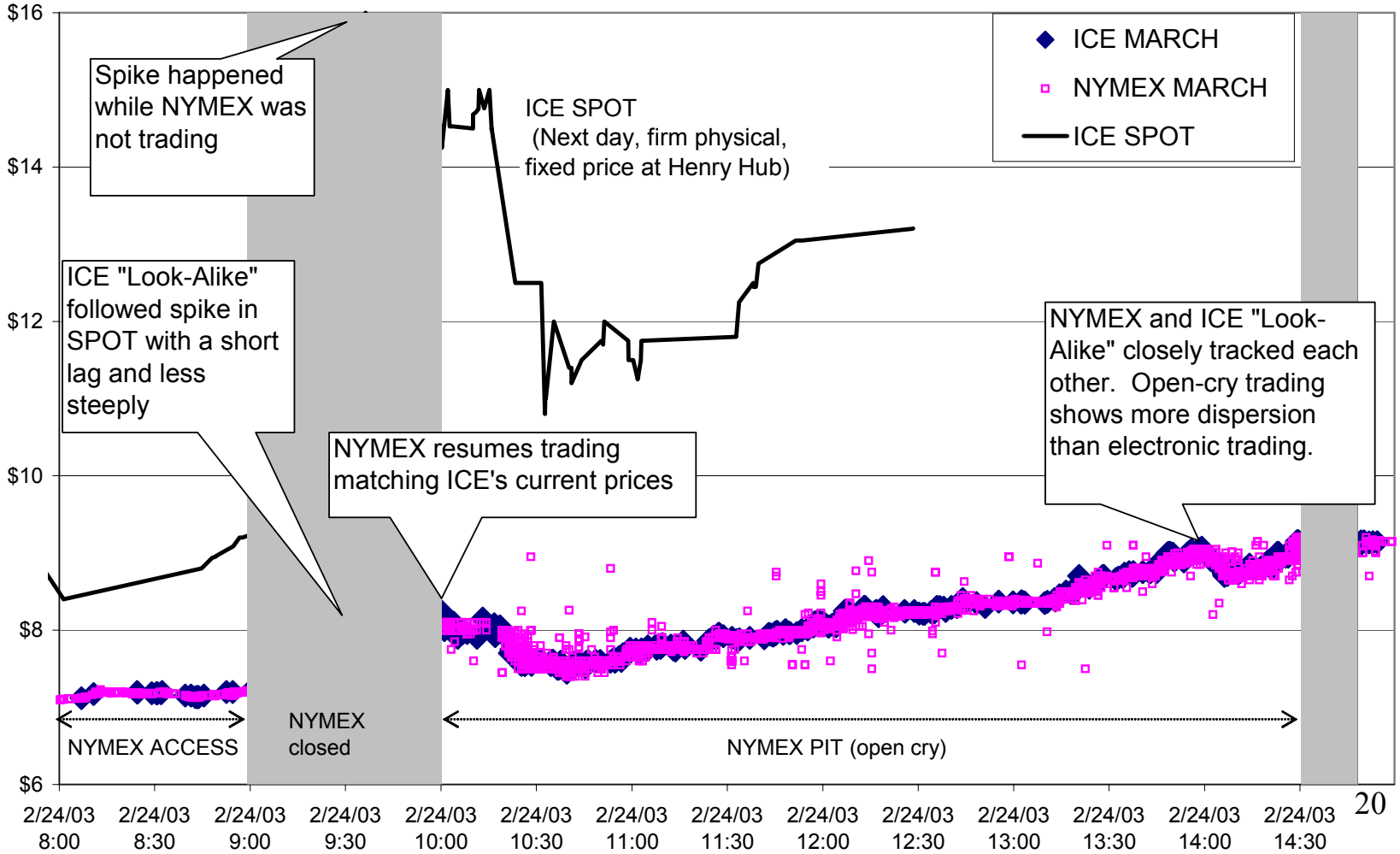



NORTHEAST - FIXED PRICES
ICE - February 24, 2003



# Comparing Daily and Prompt Month Gas Prices

FEB. 24, 2003; 8:00 - 15:00



**NYMEX *REGULAR TRADE FUTURES* AND ICE *FIN FP FOR LD1***